

## TIRES AND THE CARE OF THEM

## MAKERS GIVE ADVICE FREELY TO OWNERS.

## Things They Ought to Do—History of the Making of Shoes and Tubes for Automobiles and Many Points of Separate Exhibits of the Various Manufacturers

Every automobilist is familiar with tires. As a matter of fact it is not well to say that an automobilist is familiar with tires, he is rather more likely to regard them with respect. He cannot tell exactly how a tire is going to act and it is this condition that has made them a very important item in the expense of keeping up an automobile. The average user of a car does not know a great deal about what goes into a tire, and in fact very little has ever been said about the way tires come to be.

Some interesting points on automobile tire construction are set forth by J. C. Cole, vice-president of the Fisk Rubber Company.

"The construction of automobile tires," says he, "has been gradually brought up to its present standard by making use of the earlier lessons learned in the manufacture of bicycle tires. In that earlier experience we learned that to get sufficient strength in the fabric, in which in reality lies the real strength of the tire, it was necessary to incorporate new ideas and practices in fabric construction. This was gradually brought about with the makers of cloth and they in turn accomplished results that were considered impossible at first thought."

"The factors determining the proper makeup of an automobile tire are, first, the necessary strength of fabric to carry a certain load, second, the best way of holding together the several layers of fabric necessary to produce the required strength, third, the best way of protecting that fabric from outward injury, and fourth, the producing of an outside wearing surface to give maximum wear without introducing features that will cause any injury to the fabric."

"Experience has taught that while less layers than are used will furnish the necessary strength, it is advisable to use a greater number to help protect the tires from punctures and bursting, and so-called fabric breaks that are liable from sudden blows that are always to be found. There is also a limit to the number of layers that can be used on account of reducing the flexibility of the walls of the tire, especially in the side walls or that portion between the holding beads and the tread portion."

"It is essential that the rubber compounds used to hold the layers of fabric together should be such that the action of the fabric will be free and natural and also that it is soft enough to penetrate the interstices of the fabric and keep the threads from rubbing together and causing friction to destroy the fabric before the tire has seen real service enough to wear it out naturally."

"The above are the chief reasons why that part of the tire called the carcass fabric is designed and constructed under the present arrangement of parts. As it is necessary to protect the carcass fabric from road wear, punctures, etc., there is need of much more covering on that part of the tire coming in contact with the road. Therefore the soft rubber called the cushion and an extra layer of fabric called the breaker strip are introduced into the construction. The outside wearing surface or tread must necessarily be harder and tougher than the inner portions, in order to take the wear and not grind or cut off."

"It must also be capable of withstanding the action of air and moisture to a considerable extent. Therefore, on this, as on the carcass fabric, depends a large part of the strength of a tire. The vulcanizing, or curing of tires, consists in subjecting them to a certain heat temperature for a certain period of time in order to unite the several parts into one homogeneous mass and produce its elasticity, without which rubber is of no especial value as a wearing agent."

"In order to accomplish this the several layers of rubber from which the tire is composed must be so compounded as to blend, or flow, and unite solidly, making up a tire when complete, which is nothing more or less than a wall of rubber in which is imbedded fabric placed in such a position as will give the best results."

"The Fisk bolted on tire is constructed with all the above features carefully studied out, but in addition to these it has the advantage of being designed to hold to the rim mechanically, and not by air pressure. This feature insures absolute safety against accidents from tires being thrown off the wheels in case of loss of air pressure, and the tire is liable to occur to a tire when in use and that cannot be guarded against by any amount of care on the part of the user."

The education of automobile owners as to what constitutes a tire has been further undertaken by the B. F. Goodrich Company, which some time ago engaged the services of a lecturer and an operator to present a series of moving picture views illustrating the entire process from tree to tire. These motion pictures were taken at a large expense to the company. They represent the South American phases of the process, the tapping of the rubber tree, the preparation of the rubber milk for shipment, the inspection of the large markets and the loading for foreign ports. The Akron views illustrated every one of the steps taken at the factory to produce an automobile tire, from the washing of the crude rubber to the shipment of a white tread. This idea of showing the tire user how a tire is made met with hearty demonstrations of approval. A great deal of territory has been covered thus far throughout Ohio, Pennsylvania, New York, New Jersey, West Virginia, Maryland, Connecticut and Maine. The exhibition was also given in the middle West and on one occasion in Detroit the attendance was more than 2,500.

It was given later on in a larger place and the attendance was more than 4,000. Altogether more than 40,000 persons have attended the lecture and the Goodrich company feels that great steps have been taken to educate people to a realization of exactly what it means to bring out a tire.

As a further activity in the education of owners R. J. Firestone, sales manager of the Firestone Tire and Rubber Company, offers advice to motorists who lay up their cars for the winter so as to prevent deterioration of cases and tubes.

"To relieve the strain," says he, "jack up the car off all four tires and let out enough of the air to release the internal pressure on the case. If the tires are practically new or in good repair it will be sufficient to leave them this way, taking care to clean all oil and grease off the outside. Do not let them come in contact with heat or dampness and cover or wrap them to exclude the light and air. Tires which are perceptibly worn or cut should

be removed from the rims, cleaned, inspected and turned over to a competent rubber shop for attention if necessary."

"In fact it is an excellent plan to remove the tires if there are any damages, as small injuries quickly grow to serious ones. Here is where quick detachable demountable rims are a great advantage, as they make quick tire changing so easy that the owner does not keep postponing the job until it is never done to the detriment of the tires. Tires which are removed from the rims should be wrapped in paper to exclude light and air and stored in a cool, dark place. All rust should be cleaned off the rims and the inside cleaned with graphite or polish to prevent further rust."

"The quick demountable rim has been a decided advantage to users of tires and has helped to rob the tire problem of one of its most unpleasant phases. As a general thing the tires that are made nowadays are all of a high standing and there are so many companies that in spite of the demand competition has gone far enough to insure benefits to the consumer. The tire companies, in spite of having the market about where they wanted it, have been quick to observe the interest of their consumers, as is shown by the recent reductions in many makes."

The Michelin tire, which has been so prominent in all the racing throughout the year, having been on victorious cars in practically all the big events of the season, was the first to announce the reduction in the price and they, too, have offered suggestions to owners as to the advisability of using tires in a certain way. For instance, when the winter season came on, an advertisement was inserted showing owners how, by using two non-skid tires, one on the off side in front and the other on the near side in back, the non-skidding qualities could practically be doubled, and the effect would be much the same as having a complete set of non-skids."

The Firestone company has at the show not only a special exhibit of tires, solid and pneumatic, for pleasure cars and commercial vehicles, but also the rims designed for all standard makes. The Firestone quick detachable demountable rim has a solid base and is not a split rim. This company opposes the use of split rims on the ground that they cannot be made watertight. The Firestone, in common with all other tire manufacturers, has put washers on stay plates and valve stems for use on regular clincher and quick detachable clincher rims to prevent the entrance of any moisture."

Swinhart tire exhibits include smooth tread tires in quick demountable and clincher types. The company makes a slightly heavier tread than is the usual practice. For the first time the Swinhart is using a non-skid, the Rempel Web non-skid. The continuous web join and

reinforce each other and at the same time make a vacuum cup which is very effective as a non-skid agent. The webs are tapered down to practically nothing at the ends so that there are no abrupt ends opposed to the cutting effect of the road surface."

The Hartford Rubber Works Company manufactures Dunlops, clinchers, quick detachables and non-skid Midgley tires. The Hartford company was the original maker of the Dunlop tire in America, which is called the most rational pneumatic automobile tire. It is claimed for the Hartford tires, which are shown at the exhibition in the Garden, that they are designed to begin with and that they are constructed with the very best materials only by advanced methods and machinery in one of the oldest, exclusively tire factories in the country."

The catchword of the Hartford tire is that it is "the tire that lasts," and if the experience of long years in the bicycle business prevails to entering into the automobile business, qualities makers to understand the tire business, that certainly qualifies the Hartford company."

J. A. Braden of the Diamond Rubber Company, who is attending the show, is another who has advice to offer to owners: "We have kept the printing presses busy with our booklets on one subject. We have bought space in newspapers and magazines written of it in our letters and spoken of it whenever we could in an effort to get the automobile owners to keep their tires inflated, to give them some consideration and to remember that it is often more important to the safety and long life of this machine to use the tires properly than it is to his own comfort."

"The average motorist still considers that there is a tire problem, but it is now no more of a problem than to get a good clean product and use it intelligently. A great many of the more experienced automobile owners realize that this is true. The steering wheel of a car outlasts the motor because, while it is necessary to the working of the machine, it has infinitely less work to do. The motor with its outwear the tire because it is the office of the tire to save the motor from the hundred and one kinds of obstructions every road surface presents for every mile of its length."

"But that is what the pneumatic tires are for. So it is a question of whether you are going to spend money on the air cushion or spend it on the motor or other machinery. You may figure it any way you like, but the abused, overworked, overloaded tire has come in for a whole lot of absolutely unjust and unwarranted censure and criticism."

G. M. Stadelman, secretary of the Goodyear Tire and Rubber Company, outlines the development of the tire industry in this way: "In twenty years the transition has been made from steel and iron tires on carriages until finally carriages and pleasure vehicles of all kinds were made with solid rubber tires. Then came the epoch of the bicycle, through the small solid rubber tire to the cushion tire and then the pneumatic, which tires were the forerunners of the modern pneumatic tire. The automobile brought in the third epoch and in this rubber tire industry has had its greatest development."

"Improvement has followed improve-

ment until now the automobile tire of the best make is well nigh perfect. The fourth and last epoch is the development of the aeroplane. What this may lead to is difficult to determine at this stage. Special attention has been paid to aeroplane tires and now rubber fabric for the planes is being widely used. This particular phase of the industry is a most interesting one and seems bound to be an important branch before many years pass."

"At present, however, the layman's chief concern lies in tires for automobiles. It is in this that tire manufacturers are bending their utmost efforts in producing the most perfect article possible. What with reliability runs, coast to coast tours and activities of all kinds tires are being put to the severest test. Manufacturers are constantly striving to make tires that contain the maximum of air, that are hard to puncture and that give the most mileage."

"First of all the rubber must be the best obtainable. I consider pure Para rubber the finest for that respect for automobile tires. Sea Island cotton has been found to be the most practicable for the fabrics. Not long ago manual labor was employed exclusively in building tires. It took a big powerful man to stretch the fabric over the automobile tire casing. Few could gain the skill required to roll and work this fabric into place so that it conformed perfectly to the round surface of the casing. It took the best men three years to become expert tire makers."

"Then too there were not enough of these men to make tires fast enough to supply the demand. Those were the reasons the Goodyear Tire and Rubber Company invented and perfected machinery that replaced these master tire builders. That process of tire making by machinery is exact. There is no chance for the product to be anything but perfect."

"The best automobile tires to-day are built up of soft, tender, resilient Para rubber for the walls and tough compound rubber for the tread. Both of these are vulcanized together after being cured partly in the iron mold, which gives the squeeze to the tire, drives the rubber into the fabric and while the tire is still plastic, the air bag is placed in, the outside being wrapped with tape. Any inside imperfections which may exist are smoothed out by the air bag. The machines give an even tension to every strip of fabric."

Mr. Stadelman gives some figures of the Goodyear plant, which employs 3,300 men and produces 110,000 pounds of product a day, or 3,000 automobile tires, 2,000 bicycle and motorcycle tires, five tons of motor truck tires and six tons of carriage tires per diem."

"A motor car, other of the runabout touring or heavy limousine type, is liable to skid and to procure a tire equipment equally serviceable for all times of the year has long been sought by the car owner," says a Continental announcement. "In the fair days of summer or the stormy days of winter, when pavements and roads are slippery, muddy or icy, the new Continental Traction Tread tire actually holds the car in a straight course. The tread constructed with many rubber studded projections, grips the road surface, assures powerful traction, and affords instant starting on the most slippery pavements or removal from the deepest mud holes."

"It is in every way a tire for every purpose—resilient, long wearing and comfortable. The rubber tread will not harm the softest roadbed nor will it be prohibited from use on the most restricted drives. Continental Traction Tread tires are built with careful attention to detail as regards quality and superior workmanship. The rubber studs cannot be constructed and can not separate from the body of the tire itself. The cost—a reasonable advance over the plain tread casing, is to cover the increased cost of manufacture and is much less than other

types now offered the motoring public. "The rubber studs wear slow on heavy roads or under hard driving. Now is the time to safeguard you car and passengers against injury or possible loss of life on account of skidding into the curb, other passing vehicles or into a ditch—try them for comfort and safety's sake."

The Type Course tire of the Continental is guaranteed 4,500 miles. There is also a steel studded non-skid tire and a round tread tire made by the Continental.

At the auto show there is interest in the exhibition of the Shawmut tire in the

basement. Since the advent of Shawmut tires five years ago it has been the company's aim to build up a reputation along quality lines and now the Shawmut tire in materials, construction and workmanship represents great tire value.

For 1911 the company is showing non-skid features. In this tire there are pockets to hold dirt or sharp edges to take off. They are made in all sizes for clincher and quick detachable rims. The company has sent men to look after the exhibition who are thoroughly conversant on all points of construction of their tires.

# 12th Triumphant Year

## Made to Get and Hold Your Business, Manufacturing Practice in the Building of

# Diamond Tires

Has Never Been Framed for Advertising Purposes

The design, size and construction are determined intelligently and scientifically by engineers who understand every problem involved.

We make the assertion that with the reduced prices on Diamond tires now in effect, even the manufacturer of low priced cars will not resist giving you Diamond tires if you specify Diamond and stand firm.

You get besides scientific building in Diamond tires—Better Rubber, More Rubber—all together making tires that last longer, puncture less easily, stone bruise rarely—in short, *Greatest Mileage*.

Get away from the Misleading and Immaterial Things—The Dust Thrown Up to Cloud Your Vision

Look to what counts most, what costs the manufacturer most, and what determines the service you are going to get for your money.

It is the quality and quantity of materials used, the quality of workmanship employed in their assembling, and the knowledge and character of the men behind the guns.

THE DIAMOND RUBBER CO.

AKRON, OHIO

Space 128, Mad. Sq. Garden Show

1876 Broadway, New York Brooklyn Newark Albany And All Principal Cities.

## Price Reductions

# Diamond Tires

10% on Casings—15% on Tubes  
Effective January 9th

Crude rubber market conditions appear to justify these lower prices. We wish to give our customers such benefit always.

12th Year The Diamond Rubber Co. Greatest Mileage  
Akron, Ohio

KEEPS OUT MOISTURE—SAVES YOUR TIRES

This is just one of the many reasons why the preferred equipment of the leading cars is the

# "Firestone"

Quick-Detachable  
DEMOUNTABLE RIM

This Rim Is Not Split

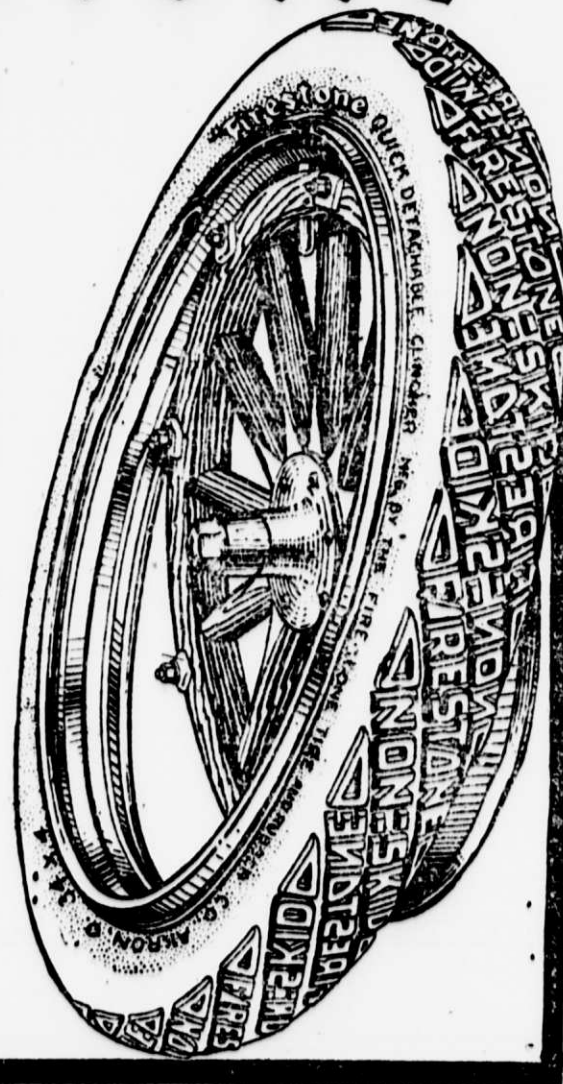
The base of the Firestone rim is not split, either around the rim or across it. The base is one piece, and does not permit the entrance of water to rot casing and tube. Even the valve hole is protected by a leather washer.

The Firestone quick detachable feature holds the tire on safely, without the need of bothersome lugs or stay-bolts. And it permits any number of tire-changes without even demounting rim from wheel.

Call for a personal demonstration and see why this rim is preferred above all others, by the leading car makers.

Madison Square Garden: Space 164  
N. Y. Branch: 233 W. 58th St.

The Firestone Tire & Rubber Co.  
Factory & General Offices: AKRON, OHIO.  
"America's Largest Exclusive Tire and Rim Makers"



**GOODRICH TIRES**  
REGULAR TIRE EQUIPMENT FOR 1911  
On All Cars Made by

<p>Pierce Arrow Car Co., Buffalo, N. Y. Olds Motor Works, Lansing, Mich. Premier Motor Mfg. Co., Indianapolis, Ind. Dayton Motor Car Co., Dayton, O. H. H. Franklin Mfg. Co., Syracuse, N. Y. Thos. B. Jeffrey Motor Car Co., Kenosha, Wis. Winton Motor Carriage Co., Cleveland, O. The White Motor Car Co., Newton, Mass. Stanley Motor Car Co., Dayton, O. Speedwell Motor Car Co., Dayton, O. Auburn Automobile Co., Auburn, Ind. Moline Automobile Co., E. Moline, Ill. Courier Motor Car Co., Dayton, O. Spaulding Mfg. Co., Grinnell, Ia.</p>	<p>Makers of the Pierce Arrow. Makers of the Oldsmobile. Makers of the Premier. Makers of the Stoddard-Dayton. Makers of the Franklin. Makers of the Rambler. Makers of the Winton Six. Makers of the White. Makers of the Stanley. Makers of the Speedwell. Makers of the Auburn. Makers of the Moline. Makers of the Stoddard 20. Makers of the Spaulding.</p>
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**Count Them.** **Note the Quality of the Cars They Build.**

A good tire equipment on your car is an indication that the maker uses the best of everything.

Each year more attention is paid to the quality of automobile tire equipment. Each year more manufacturers make Goodrich Tires their Regular Equipment. And all makers of good cars willingly provide Goodrich Tires when requested. Merit wins—in no product more conclusively than in Tires.

The B. F. Goodrich Company Largest in the World. Factories, Akron, Ohio.  
**THE B. F. GOODRICH COMPANY OF NEW YORK**  
1780-1782 BROADWAY